No. 9500010

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

W-L Research, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

ALFALFA

'WL 525 HQ'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of August in the year of our Lord one thousand nine hundred and ninety-five.

Attest:

Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
W-L Research, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.
90-296

3. VARIETY NAME
WL 525 HQ

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*
2000 Oak Street
Bakersfield, CA 93301

5. PHONE *(Include area code)*
(805) 327-4491

FOR OFFICIAL USE ONLY

PVPO NUMBER
9500010

FILING
Date: Oct. 17, 1994
Time: ☐ A.M. ☐ P.M.

FEES RECEIVED
Filing and Examination Fee: $2,325.00
Date: Sept. 14, 1994
Certificate Fee: $275.00 & $25.00
Date: May 31, 1995

6. GENUS AND SPECIES NAME
Medicago sativa L.

7. FAMILY NAME *(Botanical)*
Leguminosae

8. CROP KIND NAME *(Common Name)*
Alfalfa

9. DATE OF DETERMINATION
December 1, 1993

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
California

12. DATE OF INCORPORATION
June 30, 1988

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
M. A. Peterson, Director of Research
W-L Research, Inc.
8701 W. US Hwy. 14
Evansville, WI 53536-8752

PHONE *(Include area code)*: (608) 882-4100

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

a. ☒ Exhibit A, Origin and Breeding History of the Variety.
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety.
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 9/9/94.
g. ☒ Filing and Examination Fee ($2,325) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)*
☐ YES *(If "YES," answer items 16 and 17 below)* ☒ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES *(If "YES," through* ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____ .)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," give names of countries and dates)
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *[Owner(s)]*	CAPACITY OR TITLE	DATE
Michael Peterson	Vice President/Director of Research	September 9, 1994
SIGNATURE OF APPLICANT *[Owner(s)]*	CAPACITY OR TITLE	DATE

Exhibit A

Origin and Breeding History of WL 525 HQ

WL 525 HQ is a 120-plant synthetic variety resulting from phenotypic recurrent selection for high forage quality (high crude protein, low acid and neutral detergent fibers) using Near Infrared Reflectance Spectroscopy (NIRS). Source material traces to three experimental lines selected for persistence in a field nursery at Bakersfield, CA. Parental germplasm traces to WL 516 (30%), 86-222 (30%), Ca 898 (20%), and Maxidor (20%). The 120 parental selections were grown in an isolation cage at Bakersfield, CA. Breeder (Syn 1) seed was harvested in 1990.

Approximate germplasm source contributors are: M. varia - 5%; Turkistan - 11%; Flemish - 4%; Chilean - 10%; Peruvian - 11%; Indian - 29%; and African - 30%.

Type and Frequency of Variants

No variants are recognized in WL 525 HQ beyond the limits given in Exhibit C.

Evidence of Uniformity and Stability

We have observed stability and uniformity in essential and distinguishing characteristics (e.g. disease resistance, fall dormancy, flower color) over two generations of WL 525 HQ seed increase: Syn 1 to Syn 2 and Syn 2 to Syn 3. WL 525 HQ is as uniform as other alfalfa varieties previously accepted by State seed certification programs.

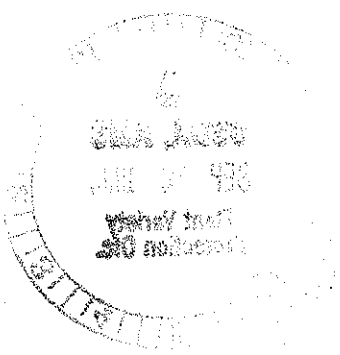

Exhibit B

Novelty Statement for WL 525 HQ

WL 525 HQ is a non-dormant (Group 8) variety that possesses superior disease, insect, and nematode resistances in addition to higher forage quality when compared to most alfalfa varieties with similar adaptation.

WL 525 HQ is most similar to WL 516, without qualification. Looking at overall pest resistance, plant color, regrowth after cutting, and winterhardiness suggests that WL 525 HQ and WL 516 are very similar. However, there are several characteristics where these two varieties are significantly different. WL 525 HQ is resistant to stem nematode; WL 516 is moderately resistant (Table 1). WL 525 HQ is highly resistant to southern root knot nematode; WL 516 displays moderate resistance (Table 2). WL 525 HQ is susceptible to anthracnose; WL 516 displays low resistance (Table 3). Finally, WL 525 HQ displays significantly higher percent crude protein and significantly lower acid and neutral detergent fibers when compared to WL 516 (Tables 4A, 4B, 4C).

There are five additional varieties which are similar to WL 525 HQ: WL 605, Moapa 69, Cuf 101, Condor, and Pioneer 5715. However, there are distinct differences between WL 525 HQ and each of these varieties. WL 525 HQ and WL 605 display significantly different fall dormancy reactions (Table 5). WL 525 HQ is highly resistant to southern root knot nematode whereas WL 605 is moderately resistant to this nematode (Table 2). Finally, WL 525 HQ is susceptible to anthracnose whereas WL 605 displays low resistance to this disease (Table 3).

WL 525 HQ is also similar to Moapa 69. However, these two varieties are significantly different in their reaction to stem nematode (Table 1). In addition, WL 525 HQ is highly resistant to phytophthora root rot whereas Moapa 69 displays low resistance to this disease (Table 6). Finally, WL 525 HQ is highly resistant to the pea aphid whereas Moapa 69 is susceptible to this aphid problem (Table 7).

WL 525 HQ is also similar to Cuf 101. However, WL 525 HQ is resistant to stem nematode whereas Cuf 101 displays low resistance to this nematode (Table 1). WL 525 HQ is a Group 8 dormancy whereas Cuf 101 is a Group 9 (Table 5). In addition, WL 525 HQ is highly resistant to phytophthora root rot while Cuf 101 is only moderately resistant to this disease (Table 6). Finally, WL 525 HQ displays "high" forage quality whereas Cuf 101 is average to low in forage quality (Tables 4A, 4B, 4C).

WL 525 HQ is also similar to Condor. However, WL 525 HQ is resistant to stem nematode whereas Condor displays low resistance to this nematode (Table 1). WL 525 HQ is highly resistant to southern root knot nematode whereas Condor displays low resistance to this nematode (Table 2). In addition, WL 525 HQ displays significantly higher percent crude protein and significantly lower ADF and NDF levels when compared to Condor over three locations (Tables 4A, 4B, 4C). Finally, WL 525 HQ is moderately resistant to bacterial wilt; Condor is susceptible to this disease (Table 8).

WL 525 HQ is also similar to Pioneer 5715. However, WL 525 HQ is resistant to stem nematode whereas Pioneer 5715 displays low resistance to this nematode (Table 1). WL 525 HQ

(Table 3). Finally, WL 525 HQ is highly resistant to the pea aphid, whereas Pioneer 5715 is resistant to the pea aphid (Table 7).

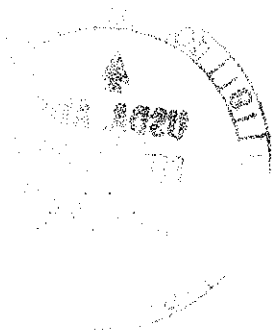

Table 1 > Stem Nematode Resistance* – Warden, WA (1994)

Entry	% Resistance	A.S.I.
Lahontan (R)	43	2.5
Ranger (S)	9	4.4
WL 525 HQ (R)	39	2.7
WL 516 (MR)	23	3.5
Moapa 69 (LR)	14	3.9
Cuf 101 (LR)	14	3.8
Condor (LR)	12	3.9
Pioneer 5715 (LR)	8	4.1
Mean	20	3.6
LSD (.05)	10	0.3
CV %	18	6.2

*Data was obtained from a 4-replicate greenhouse flat test with approximately 45 seedlings per entry per replicate.

Table 2 > Southern Root Knot Nematode Resistance* -- Bakersfield, CA (1994)

Entry	% Resistance	A.S.I.
Moapa 69 (R)	50	1.7
Lahontan (S)	3	3.3
WL 525 HQ (HR)	64	1.3
WL 516 (MR)	28	2.3
WL 605 (MR)	24	2.3
Condor (LR)	12	3.0
Mean	31	2.3
LSD (.05)	10	0.2
CV %	21	7.7

*Data was obtained from a 4-replicate greenhouse bench test with approximately 40 seedlings per entry per replicate.

Table 3 > Anthracnose Resistance* – Evansville, WI (1994)

Entry	% Resistance
Arc (HR)	72
Saranac (S)	2
WL 525 HQ (S)	3
WL 516 (LR)	13
WL 605 (LR)	12
Pioneer 5715 (HR)	57
Mean	28
LSD (.05)	9
CV %	23

*Data was obtained from a 4-replicate greenhouse flat test with approximately 60 seedlings per entry per replicate.

(4A)

Addendum

WL 525 HQ

III. D. Special Claims

WL 525 HQ appears to have high forage quality (high crude protein, low acid and neutral detergent fibers) when compared to some commercially available varieties.

Bakersfield, California
Forage Quality -- 1991 Results
Seeded November 1990

June 1

Entry	Maturity*	% CP	% ADF	% NDF	RFV	Yield (t/a)
WL 525 HQ	2.9	23.2	28.0	29.7	211.1	1.68
WL 516	2.9	22.4	29.4	33.1	187.3	1.58
Condor	3.0	22.4	28.7	31.3	199.5	1.58
Cuf 101	3.1	22.7	28.8	31.6	196.1	1.59
Mean	3.0	22.7	28.7	31.4	198.5	1.61
LSD (.05)	0.4	1.1	1.3	1.5	11.2	0.22
CV %	4.9	4.2	3.4	4.5	5.4	9.83

September 25

Entry	Maturity*	% CP	% ADF	% NDF	RFV	Yield (t/a)
WL 525 HQ	3.3	23.4	28.5	31.2	199.0	1.40
WL 516	3.2	22.7	30.4	33.4	182.2	1.22
Condor	3.3	22.3	31.3	34.1	176.2	1.30
Cuf 101	3.5	21.9	31.3	33.7	178.7	1.22
Mean	3.3	22.6	30.4	33.1	184.0	1.29
LSD (.05)	0.5	1.1	1.3	1.4	11.0	0.12
CV %	6.8	3.6	3.9	3.0	4.3	6.64

*Maturity Scored 1-8: 1 = vegetative, 2 = early bud, 3 = mid bud, 4 = late bud, 5 = early flower, 6 = mid flower, 7 = late flower, 8 = post flower

(4B)

WL 525 HQ

Fresno, California
Forage Quality -- 1992 Results
Seeded February 1991

May 21

Entry	Maturity*	% CP	% ADF	% NDF	RFV	Yield (t/a)
WL 525 HQ	3.9	20.4	31.8	38.3	155.6	2.35
WL 516	3.8	19.8	32.8	39.8	148.1	2.44
Condor	4.0	19.0	33.6	39.6	147.4	2.39
Cuf 101	4.0	18.4	32.8	39.1	150.7	2.24
Mean	3.9	19.4	32.8	39.2	150.5	2.36
LSD (.05)	0.5	1.1	0.8	1.0	7.1	0.18
CV %	6.1	3.3	2.2	2.8	4.2	5.11

July 17

Entry	Maturity*	% CP	% ADF	% NDF	RFV	Yield (t/a)
WL 525 HQ	3.8	20.7	32.1	39.7	149.9	2.32
WL 516	3.9	18.6	34.7	42.5	135.6	2.22
Condor	3.8	19.6	34.1	41.2	141.0	2.20
Cuf 101	4.0	19.4	34.4	41.3	140.0	2.12
Mean	3.9	19.6	33.8	41.2	141.6	2.22
LSD (.05)	0.6	1.1	1.4	1.3	7.1	0.24
CV %	7.7	4.1	2.8	2.7	3.8	7.15

*Maturity Scored 1-8: 1 = vegetative, 2 = early bud, 3 = mid bud, 4 = late bud, 5 = early flower, 6 = mid flower, 7 = late flower, 8 = post flower

(4C)

WL 525 HQ

Gustine, California
Forage Quality -- 1992 Results
Seeded November 1991

June 5

Entry	Maturity*	% CP	% ADF	% NDF	RFV	Yield (t/a)
WL 525 HQ	3.3	26.1	26.7	33.3	190.1	1.49
WL 516	3.5	24.4	28.3	35.1	177.8	1.41
13R Supreme	3.2	25.6	27.1	34.4	183.0	1.63
Mean	3.3	25.4	27.4	34.3	183.6	1.51
LSD (.05)	0.4	1.3	1.1	1.2	7.7	0.21
CV %	4.9	4.0	4.6	3.3	3.0	9.08

August 31

Entry	Maturity*	% CP	% ADF	% NDF	RFV	Yield (t/a)
WL 525 HQ	3.0	24.9	26.9	33.4	189.7	1.07
WL 516	3.0	24.0	28.9	35.5	175.9	1.01
13R Supreme	3.2	23.0	30.0	36.1	176.6	1.10
Mean	3.1	24.0	28.6	35.0	180.7	1.06
LSD (.05)	0.6	7.3	1.8	1.8	7.7	0.21
CV %	6.9	3.8	4.0	3.2	2.9	9.62

*Maturity Scored 1-8: 1 = vegetative, 2 = early bud, 3 = mid bud, 4 = late bud, 5 = early flower, 6 = mid flower, 7 = late flower, 8 = post flower

Table 5 > Fall Dormancy Reaction* -- Evansville, WI (1993)

Clipped 9/12/93
Scored 10/18/93

Entry (Dormancy Group)	Fall Height (Inches)
Cuf 101 (9)	15.7
Moapa 69 (8)	14.1
Mesilla (7)	10.8
WL 525 HQ (8)	14.0
WL 605 (9)	15.2
Mean	14.0
LSD (.05)	1.0
CV %	11.3

*Fall dormancy was measured as natural plant height in a space-planted, four-replicate trial with approximately 45 plants/entry/replicate.

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Table 6 > Phytophthora Root Rot Resistance* – Evansville, WI (1994)

Entry	% Resistance
Agate (R)	42
Saranac (S)	2
WL 525 HQ (HR)	59
Moapa 69 (LR)	14
Cuf 101 (MR)	23
Mean	28
LSD (.05)	9
CV %	14.8

*Data obtained from a 4-replicate greenhouse tub test with approximately 80 seedlings/ entry/replicate.

Table 7 > Pea Aphid Resistance* -- Bakersfield, CA (1993)

Entry	% Resistance	A.S.I.
PA-1 (R)	54	3.4
Moapa 69 (S)	4	4.6
WL 525 HQ (HR)	63	3.2
Pioneer 5715 (R)	42	3.8
Mean	42	3.8
LSD (.05)	10	0.3
CV %	18	7.7

*Pea aphid resistance data obtained from a 4-replicate greenhouse flat test with approximately 50 seedlings/entry/replicate.

Table 8 > Bacterial Wilt Resistance* – Evansville, WI (1993)

Entry	% Resistance	A.S.I.
Vernal (R)	42	2.00
Sonora (S)	0	4.13
WL 525 HQ (MR)	20	2.64
Condor (S)	3	4.08
Mean	16	3.21
LSD (.05)	10	0.34
CV %	14.7	9.03

*Data was obtained from a 4-replicate space-planted field trial with approximately 50 plants/entry/replicate.

EXHIBIT (Alfalf

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
COMMODITIES SCIENTIFIC SUPPORT DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

ALFALFA (*Medicago sativa* sensu Gunn et al.)

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
W-L Research, Inc.	90-296	WL 525 HQ

ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code)
2000 Oak Street
Bakersfield, CA 93301

FOR OFFICIAL USE ONLY
PVPO NUMBER
9500010

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place numbers in the boxes to designate the expressions which are characteristic of the commerical generations of the application variety. Data for quantitative plant characters should be based on a minimum of 100 plants. Include leading zeros when necessary (e.g., [0][8][9]) for quantitative data. Comparative data should be determined from varieties entered in the same trial. Plant color may be precisely designated by using any recognized color chart, e.g., The Munsell Plant Tissue Color Charts.

1. WINTERHARDINESS:

[2] CLASS:

1 = Very Non-Winterhardy (CUF 101)
2 = Non-Winterhardy (Moapa 69)
3 = Intermediately Non-Winterhardy (Mesilla)
4 = Semi-Winterhardy (Lahontan)
5 = (Du Puits)
6 = Moderately Winterhardy (Saranac)
7 = (Ranger)
8 = Winterhardy (Vernal)
9 = Extremely Winterhardy (Norseman)

TEST LOCATION: Evansville, WI

2. FALL DORMANCY:

FALL DORMANCY (DETERMINED FROM SPACED PLANTINGS)

TESTING INSTITUTION AND LOCATION	DATE OF LAST CUT	DATE REGROWTH SCORED	REGROWTH SCORE OR AVERAGE HEIGHT				LSD .05
			APPLICATION VARIETY	CHECK VARIETIES*			
				Mesilla	Moapa 69	Cuf 101	
Warden, WA	9/92	10/92	12.7	7.8	12.1	13.4	1.0

* CUF 101, Moapa 69, Mesilla, Lahontan, Du Puits, Saranac, Ranger, Vernal, or Norseman as appropriate.

Specify scoring system used: Height in inches from a replicated spaced-plant nursery

[2] Fall Growth Habit (Determined from Fall Dormancy Trials)

1 = Erect (CUF 101)
3 = Semierect (Mesilla)
5 = Intermediate (Saranac)
7 = Semidecumbent (Vernal)
9 = Decumbent (Norseman)

3. RECOVERY AFTER FIRST SPRING CUT (In Southwest, first cut after March 21):

[1]

1 = Very Fast (CUF 101)
3 = Fast (Saranac)
5 = Intermediate (Ranger)
7 = Slow (Vernal)
9 = Very Slow (Norseman)

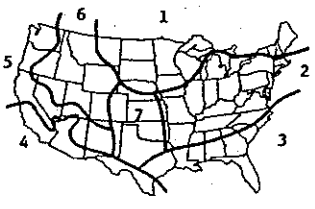
TEST LOCATION: Bakersfield, CA

4. AREAS OF ADAPTATION IN U.S. (Where tested and proven adapted):

[4] Primary Area of Adaptation

[3] [ ] Other Areas of Adaptation

1 = North Central
2 = East Central
3 = Southeast
4 = Southwest
5 = Moderately Winterhardy Intermountain
6 = Winterhardy Intermountain
7 = Great Plains
8 = Other (Specify) _____



5. FLOWERING DATE (When 10% of plants possess open flowers at time of first spring cut):

[0][3] Days Earlier Than . . . . . [2]

Same As . . . . . [ ] (Moapa 69)

[0][2] Days Later Than . . . . . [1]

1 = CUF 101
2 = Mesilla
3 = Saranac
4 = Vernal
5 = Norseman

TEST LOCATION: Bakersfield, CA

6. PLANT COLOR (Determined from healthy regrowth 3 weeks after first spring cut, controlling leafhoppers if necessary):

[2] 1 = Very Dark Green (524) 2 = Dark Green (Vernal) 3 = Light Green (Ranger)

COLOR CHART VALUE (Specify chart used): Munsell Color Charts, 1st Edition, 1952. Munsell Co., Baltimore,

APPLICATION VARIETY: 5/6

VERNAL: 5/6 (WL 322 HQ = 4/6)

TEST LOCATION: Evansville, WI - Measurements taken June 23, 1993; leafhoppers controlled wi insecticide

7. CROWN TYPE (Determined from spaced plantings):

[3] Noncreeping Types: 1 = Broad (Vernal) 2 = Intermediate (Saranac) 3 = Narrow (CUF 101)

Creeping Types: 4 = Creeping Rooted (Rangelander) 5 = Rhizomatous (Rhizoma)

8. FLOWER COLOR (Determine frequency of plants for each color class as defined by USDA Agricultural Handbook No. 424 (Barnes 1972), allowing all plants in plot to flower):

[099] % Purple and Violet (Subclasses 1.1 to 1.4)

[0] % Variegated Other Than Blue (Subclasses 2.1, 2.2, 2.5 to 2.9)

[001] % Cream (Class 3)

[0] % Blue (Subclasses 2.3 and 2.4)

[0] % Yellow (Subclasses 4.1 to 4.4)

[0] % White (Class 5)

TEST LOCATION: Fresno, California

9. POD SHAPE (Determine frequency of plants with the following pod shapes produced on well cross-pollinated racemes):

[100] % Tightly Coiled (One or more coils, center more or less closed)

[0] % Loosely Coiled (One or more coils, center conspicuously open)

[0] % Sickle (Less than 1 coil)

TEST LOCATION: Fresno, California

10. PEST RESISTANCE: Provide in the appropriate column, trial data for application variety, and resistant (R) and susceptible (S) check varieties, synthetic generation tested, average severity index scores (ASI), least significant difference statistics (LSD .05), the institution in charge of test, year, and location of test, and whether test is a field or laboratory evaluation. Describe scoring system, and any test procedure which differs from standard methods proposed by Elgin (1982). Trial data from other test years or locations should be presented whenever available on a separate document as Exhibit D.
Seeds of the check varieties and germplasm lines listed below can be obtained from the USDA Field Crops Laboratory, Bldg. 001, Rm. 335, BARC-West, Beltsville, MD 20705. Although comparisons with check varieties listed below are preferred, comparisons with any appropriate check variety recommended by Elgin (1982) may be presented.

A. DISEASE RESISTANCE: DISEASE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Anthracnose, Race 1 *(Colletotrichum trifolii)*	Application						
	Arc (R)						
	Saranac (S)						
	SCORING SYSTEM:						
Anthracnose, Race 2 *(Collectotrichum trifolii)*	Application						
	Saranac AR (R)						
	Arc (S)						
	SCORING SYSTEM:						
Bacterial Wilt *(Corynebacterium insidiosum)* (MR)	Application	Syn 1	22	155	2.54		W-L Research, Inc.
	Vernal (R)		42	167	2.19	0.38	Evansville, WI (19
	Narragansett (S)		0	159	4.17		
	SCORING SYSTEM: Plants scored 0-5; 0 and 1 resistant and 5 = dead plant.						
Common Leafspot *(Pseudopeziza medicaginis)*	Application						
	MSA-CW3AN3 (R)						
	Ranger (S)						
	SCORING SYSTEM:						

10. A. PEST RESISTANCE (Continued):

DISEASE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION FIELD OR LABORATORY
Downy Mildew *(Peronospora trifoliorum)*	Application						
Isolate, if known:	Saranac (R)						
	Kanza (S)						
	SCORING SYSTEM:						
Fusarium Wilt *(Fusarium oxysporum f. medicaginis)*	Application	Syn 1	72	145	1.25	0.40	W-L Research, Inc Evansville, WI (
(HR)	~~Moapa 69 (R)~~ Agate (R)		54	140	2.07		
	~~Narragansett (R)~~ MnGN-1 (S)		8	145	3.72		
	SCORING SYSTEM: Plants scored 0-5; 0 and 1 resistant and 5 = dead plant.						
Phytophthora Root Rot *(Phytophthora megasperma f. medicaginis)*	Application	Syn 1	57	209	---	% Resis. LSD (.05) 9	W-L Research, Inc. Evansville, WI (1
(HR)	Agate (R)		43	207	---		
	Saranac (S)		2	204	---		
	SCORING SYSTEM: Percent resistance based on seedling survival.						
Verticillium Wilt *(Verticillium alboatrum)*	Application						
	Vertus (R)						
	Saranac (S)						
	SCORING SYSTEM:						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

B. INSECT RESISTANCE:

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT DEFOLIATION	DEFOLIATION IN PERCENT OF RESISTANT CHECK	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Alfalfa Weevil *(Hypera postica)*	Application						
	Arc (R)			100			
	Saranac (S)						
	SCORING SYSTEM:						

10. B. INSECT RESISTANCE (Continued):

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT SEEDLING SURVIVAL	NUMBER OF SEEDLINGS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Blue Alfalfa Aphid *(Acyrthosiphon kondoi)* (HR)	Application	Syn 1	57	188	2.4	0.4	W-L Research, Inc. Bakersfield, CA (19
	CUF 101 (R)		55	188	2.4		
	PA-1 (S)		12	195	3.9		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						
Pea Aphid *(Acyrthosiphon pisum)* (HR)	Application	Syn 1	69	183	2.1	0.2	W-L Research, Inc. Bakersfield, CA (19
	~~Kanza (R)~~ PA-1 (R)		55	172	2.4		
	~~Ranger (S)~~ Moapa 69 (S)		8	176	3.7		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						
Spotted Alfalfa Aphid *(Therioaphis maculata)* Biotype, if known: (H) (HR)	Application	Syn 1	70	168	2.5	0.3	W-L Research, Inc. Bakersfield, CA (19
	~~Kanza (R)~~ Cuf 101 (R)		60	174	2.6		
	~~Ranger (S)~~ Caliverde (S)		2	174	4.9		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5 = dead plant.						

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Potato Leafhopper Yellowing *(Empoasca fabae)*	Application						
	MSA-CW3An3 (R)						
	Ranger (S)						
	SCORING SYSTEM:						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

C. NEMATODE RESISTANCE: NEMATODE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Northern Root Knot *(Meloidogyne hapla)*	Application						
	Nev. Syn. XX (R)						
	Lahontan (S)						
	SCORING SYSTEM:						

10. C. NEMATODE RESISTANCE (Continued):

NEMATODE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Southern Root Knot *(Meloidogyne incognita)* (HR)	Application	Syn 1	62	143	1.3	0.2	Crop Characteristics Inc. ~~Marshfield~~ Stanton, MN (1993 AAA per phone conv Oct 199
	Moapa 69 (R)		50	136	1.5		
	Lahontan (S)		3	119	2.6		
	SCORING SYSTEM: Plants scored 1 (resistant, no galls) to 4 (susceptible, heavy galling)						
Stem Nematode *(Ditylenchus dipsaci)* (R)	Application	Syn 1	47	183	3.6	0.2	W-L Research, Inc. Bakersfield, CA (199
	Lahontan (R)		50	190	3.5		
	Ranger (S)		10	192	4.4		
	SCORING SYSTEM: Plants scored 1-5; 1 and 2 resistant and 5= dead plant.						
Other *(Specify)* _____	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

11. INDICATE THE VARIETY THAT MOST CLOSELY RESEMBLES THE APPLICATION VARIETY FOR EACH OF THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
Winterhardiness	Moapa 69	Plant Color	Vernal
Recovery After 1st Cut	Cuf 101	Crown Type	Cuf 101
Area of Adaptation	WL 516	Combined Disease Resistance	WL 516
Flowering Date	Moapa 69	Combined Insect Resistance	Cuf 101

REFERENCES

Barnes, D.K. 1972. A System for Visually Classifying Alfalfa Flower Color. U.S. Dep. Agric. Handb. 424. 18 pp. (Note: Greenish cast of plate 6, A and B is an artifact of printing, actual colors a blend of yellow and white.)

Elgin, J.H., Jr., (ed.). 1982. Standard Tests to Characterize Pest Resistance in Alfalfa Cultivars. U.S. Dep. Agric. Tech. Bull. (In Press).

Gunn, C.R., W.H. Skrdla, and H.C. Spencer. 1978. Classification of Medicago sativa L. using legume characters and flower colors. U.S. Dep. Agric. Tech. Bull. 1574. 84 pp.

Munsell Color Co. 1977. Munsell Plant Tissue Color Charts. Munsell Color Co., Inc. Baltimore.

NOTE: Any additional descriptive information and supporting documentation may be provided as Exhibit D.

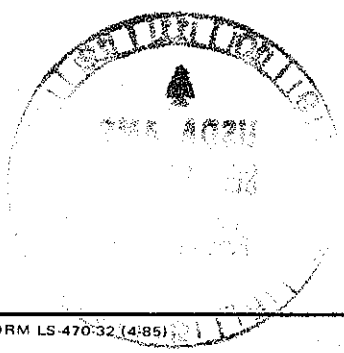


Exhibit D

Additional Description of Variety

WL 525 HQ is a non-dormant alfalfa variety adapted for use in the southwestern and southern United States for hay, haylage, and dehydration purposes. Mid-summer and fall growth are erect.

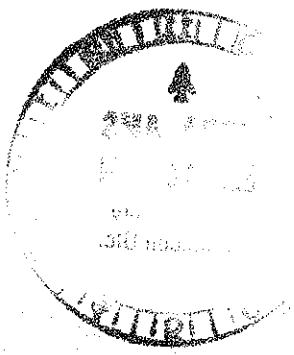


Exhibit E

Statement of Applicant's Ownership

WL 525 HQ is a proprietary alfalfa variety developed by the plant breeding staff of W-L Research, Inc., 2000 Oak Street, Bakersfield, California 93301.

Applications for plant variety protection on WL 525 HQ have not been filed in any other country.